

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
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In the Matter of)

Revision of Part 22 of the)
Commission's Rules Governing)
the Public Mobile Services)

CC Docket No. 92-115

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COMMENTS ON PETITION FOR RECONSIDERATION
FILED BY THE ERICSSON CORPORATION AND PETITION
FOR CLARIFICATION AND RECONSIDERATION FILED BY
THE MOBILE AND PERSONAL COMMUNICATIONS 800 SECTION
OF THE TELECOMMUNICATIONS INDUSTRY ASSOCIATION

C-Two-Plus Technology, Inc. ("C2+"), submits these comments in response to the Petition for Reconsideration filed by the Ericsson Corporation ("Ericsson") and the Petition for Clarification and Reconsideration filed by the Mobile and Personal Communications 800 Section of the Telecommunications Industry Association ("TIA") in this proceeding. C2+ agrees that the Commission's attempt to prohibit all modification of electronic serial numbers ("ESNs") outside of the manufacturer's factory is "an expensive and ineffective method of fighting cellular fraud" which ultimately will "cause significant hardship to consumers" without providing "any significant corresponding increase in the cellular industry's ability to meaningfully combat fraud." TIA Petition at iii; Ericsson Petition at 3-4. However, C2+ opposes Petitioners' suggestion that only "authorized agents" of the manufacturer should be permitted to "make changes to the software and firm-

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ware programmed in mobile transmitters" outside the factory.
Ericsson Petition at 2; TIA Petition at 7.

I. The ESN Measures Adopted By The Commission
 Would Outlaw Responsible ESN Modification Which
 Benefits Consumers Without Providing Any
 Corresponding Increase In Fraud Protection

Like TIA and Ericsson, C2+ supports responsible efforts to combat cellular fraud. According to the Cellular Telecommunications Industry Association ("CTIA"), "bandits" who enter "stolen ESN/MIN pairs...into cellular phones...to unlawfully access and obtain cellular service" cost the cellular carriers millions in fraudulent air-time and long-distance charges each year. See Affidavit of Thomas W. McClure ("McClure Aff.") attached to CTIA Opposition to Motion for Stay, filed Dec. 27, 1994, at ¶¶5-6. Moreover, CTIA contends that certain of these cellular "bandits" are also involved in "criminal activity such as narcotics and gun trafficking." McClure Aff. at ¶7. C2+ wholeheartedly endorses efforts by the Commission and the carriers to target and eradicate such fraudulent and criminal activities.

However, C2+ agrees with TIA and Ericsson that the ESN measures adopted by the Commission in the Report and Order¹ "will have very little impact on the fraud problem." Ericsson Petition at 9. Instead, those measures are likely to have "unintended harmful effects" on cellular subscribers and

¹ Revision of Part 22 of the Commission's Rules Governing the Public Mobile Services, CC Docket No. 92-115, ___ FCC Rcd. ___, 76 R.R.2d 1 (1994) ("Report and Order").

the cellular industry in general. Id. at 3. Specifically, the Commission's proposal "will substantially increase the cost, and decrease the quality of service and equipment, to customers...may significantly and adversely affect the ability of TIA's members to export their products...[and] will never be successful" in combatting cellular fraud. TIA Petition at iii-iv.

In short, the fundamental flaw in the Commission's Report and Order is that it completely fails to distinguish between "bandits" who program "stolen ESNs" into cellular phones "to unlawfully access and obtain cellular services" and bona fide cellular subscribers who use services like C2+ to program the ESN of their primary cellular phone into another phone to allow greater use of lawfully obtained service for which the customer makes full payment. Outlawing responsible ESN modifications performed at the request of bona fide cellular customers in order to repair a damaged phone (TIA Petition at 6; Ericsson Petition at 4; C2+ Petition at 6), upgrade service features in an existing phone (TIA Petition at 6; Ericsson Petition at 5-6), or provide an "extension" portable phone (C2+ Petition at 6-7), does nothing to increase the "cellular industry's ability to meaningfully combat fraud" (Ericsson Petition at 4) and serves only to inconvenience existing customers and/or to unnecessarily increase their recurring monthly service charges and other costs. See e.g. TIA Petition at 9 (the Commission's proposal involves "substantial" costs which "will have to be paid directly...or

indirectly...by consumers without...any offsetting benefits"); C2+ Petition at 8 (prohibiting responsible ESN modification for legitimate cellular customers "would provide no additional protection against cellular fraud and instead would simply deprive consumers of significant cost savings.")

For this reason, C2+ supports Ericsson's suggestion that the Commission "convene an Advisory Committee to engage in a Negotiated Rulemaking proceeding in which affected industry parties can adopt rules designed to effectively prevent cellular fraud." Ericsson Petition at 1. C2+ believes that such a proceeding would afford an opportunity to craft rules more directly targeted to prevent the fraudulent and criminal conduct identified by CTIA, while preserving "the many public interest benefits" to bona fide cellular customers "which can be derived by enabling software and other changes to be made to cellular mobile terminals" belonging to those customers. Id. at 13. There is simply no record evidence that legitimate cellular customers must be deprived of the service functions, flexibility and cost savings which they clearly desire in order to protect against the types of cellular fraud identified by CTIA.

Likewise, C2+ does not oppose the suggestion by TIA and Ericsson that CTIA's authentication proposal may present a more reasonable and effective means to combat cellular fraud. TIA Petition at 12-16; Ericsson Petition at 10-13. By rendering "ESNs obsolete for billing purposes" authentication apparently would provide greater protection against fraudulent

and unauthorized use of the carrier's system. TIA Petition at 13-14. However, C2+ respectfully suggests that the Commission take steps to ensure that the authentication process does not prolong the carriers' ability to demand unnecessary additional monthly service charges from bona fide customers desiring to use more than one cellular phone. Consequently, carriers should be required to authenticate multiple phones for a particular customer without imposing additional recurring monthly service charges.

II. Modification Of ESNs For Bona Fide Cellular Customers Should Not Be Restricted To Manufacturers And Authorized Agents

C2+ opposes the proposal by TIA and Ericsson to allow only "manufacturers and their authorized agents to make changes to the software and firmware programmed in mobile transmitters." Ericsson Petition at 2; TIA Petition at 7. There is no record support for the Commission's decision to restrict permissible ESN modification to the manufacturers' factory locations. See TIA Petition at 11 ("there is no reason to believe that software located at manufacturers' agents service locations will be any less secure than software located at the manufacturers' own manufacturing sites"); C2+ Petition at 8 (no record support for speculation that software is safer at the manufacturers' factories). Responsible parties other than the manufacturer and its authorized agents are equally capable of providing secure methods to modify ESNs for bona fide cellular customers.

As TIA has recognized, the Commission "was incorrect in surmising that ESN-altering software could not be protected" outside the factory. TIA Petition at 10. Such software can be protected "using either symmetric or asymmetric key cryptography similar to that which underlies the authentication protections being installed in new generation telephones." Id. at 10-11. However, the manufacturers' authorized service representatives are not the only entities capable of using such encrypted technology to modify ESNs; C2+ has been using similar technology for years. See C2+ Petition at 10-11 and Affidavit of Stuart F. Graydon, attached as Exhibit 1 at ¶¶3-7, 11. Consequently, there is no reason to prohibit entities other than manufacturers and their authorized representatives from modifying ESNs for bona fide cellular customers, or to "disallow...the use of equipment with ESNs that have been altered by other than manufacturer's authorized agents" (TIA Petition at 7), as long as that equipment is being used only by legitimate cellular subscribers.

In order to ensure that ESN modification is performed by responsible parties and only for bona fide cellular customers, C2+ respectfully suggests that any entity engaging in ESN modification, emulation or transfer should be required to:

- (1) obtain written evidence that the customer is a bona fide cellular subscriber, and that the phone whose ESN is being emulated is registered with the cellular carrier as that customer's primary phone for billing purposes;

- (2) modify the ESN using only encrypted methods which will be ineffective without particularized encryption codes issued by a responsible party holding a valid FCC Radio-Telephone License of Second Class or above;
- (3) use decryption devices which will cause the phone to render itself inoperable after unsuccessful attempts to program the phone at random without the required codes; and
- (4) notify the carrier that the customer is using an emulated phone.

See C2+ Petition at 22-23. C2+ respectfully suggests that its proposal provides the same measure of protection against fraud (through use of encryption technology to prevent unauthorized use and notice to the carrier) as the Ericsson or TIA proposal, but preserves the added measure of competition in the cellular marketplace.

III. A Cellular Subscriber Should Not Be Prohibited From Using An Emulated Phone Merely Because The Carrier Did Not Expressly Authorize The Specific ESN Transfer

Finally, C2+ opposes the TIA petition to the extent that it infers that a bona fide cellular customer should not be permitted to use an emulated phone under any circumstances if the ESN transfer was not expressly authorized by the system operator. See TIA Petition at 7 n.2 ("TIA is not seeking reconsideration of the Rule insofar as it prohibits ESN transfers that are not authorized by users and system operators, regardless of the relevant equipment date of type-acceptance approval") (second emphasis supplied). Because use of an emulated "replacement" or "extension" phone by a bona fide cellular customer is not fraudulent and does not adversely

affect the carrier's system, there is no justifiable reason for prohibiting such use merely because the carrier did not expressly approve the ESN transfer.

For example, TIA apparently would prohibit countless cellular subscribers from using phones which have had their ESNs modified in the course of ordinary repairs or service upgrades if the carrier did not previously and expressly authorize each and every repair or upgrade. There is substantial record evidence that ESN modification and/or emulation has been a significant aspect of "established cellular telephone repair and upgrade practices" for years.² Thus, there are innumerable cellular subscribers currently using phones whose ESNs have been modified through repair practices which were "developed at the insistence of cellular carriers" and which have been generally accepted by the industry for years. There is no reason to prohibit use of those phones now merely because the carrier did not expressly authorize each and every ESN transfer.

² See e.g., TIA Petition at 6, 9 ("ESN transfers were crucial to manufacturers' repair and service upgrade procedures"); Ericsson Petition at 4 n.4 ("Repair/replacement programs and the technology to make quick and easy ESN and other electronic changes to cellular terminals have been developed at the insistence of cellular carriers who do not want their subscribers to be inconvenienced in any manner by defective terminals."); Reply Comments of Motorola, Inc., filed Nov. 5, 1992, at 2-3 (Motorola has an ESN transfer repair "program in place, and it has been positively accepted by a number of cellular service providers, as well as by the cellular user public" and by CTIA, whose "equipment certification program currently...permits these ESN transfer procedures."); CTIA Comments filed Oct. 5, 1992, at 8 (absolute prohibition on ESN modification outside the factory would interfere with "legitimate repairs").

In addition, TIA apparently would prohibit a bona fide cellular customer in good standing from using "an emulated phone" as an "extension" phone to place or receive calls which are billed to the customer's primary phone with his or her full knowledge and consent. Although the cellular carriers also have sought to prohibit such use, their interest in doing so is not motivated by their desire to protect against fraud, but rather by their desire to protect their monthly recurring revenue stream. Based on the substantial consumer demand for "two phones/one number" service or other similar cellular "extension phone" services, one petitioner has calculated that providing "extension" service through responsible ESN modification or emulation techniques would save cellular subscribers over \$4 billion in monthly recurring charges over the next five years when compared to similar services now offered by the carriers (which combine two ESNs onto a single mobile identification number through software at the switch -- a service for which the carriers charge \$20 to \$40 per month in addition to the air-time charges for both phones). See Petition for Reconsideration of MTC Communications, filed Dec. 19, 1994, at 11.

Thus, cellular carriers clearly have an overwhelming financial incentive to prevent subscribers from taking advantage of "extension" service through "use of an emulated phone" rather than through their own "two phones/one number" service offerings. Where a cellular subscriber in good standing elects to use an emulated phone to make or receive calls for which he or she pays all applicable charges, the carrier


should not be permitted to deny or terminate service absent a showing that the customer's equipment is causing harm to the system. Prohibiting use of emulated "extension" phones by bona fide cellular customers, or allowing the carriers the unfettered discretion to terminate service to such customers, will contribute nothing to the prevention of cellular fraud and will serve only to enhance the revenue stream of the duopoly cellular carriers and further insulate them from competition.

CONCLUSION

Absent modification, the Commission's Report and Order will deprive legitimate cellular customers of desired services, increase their costs and further limit competition, without any corresponding benefits in terms of fraud protection. Rather than sacrificing the public interest benefits identified by the petitioners, the Commission should permit ESN modification at the request of an authorized cellular subscriber when performed by a responsible party using accepted encryption technologies to protect against unauthorized use.

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Respectfully submitted,



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CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing
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